

Date: Fri, 21 Oct 94 04:30:25 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: List
Subject: Ham-Ant Digest V94 #351
To: Ham-Ant

Ham-Ant Digest Fri, 21 Oct 94 Volume 94 : Issue 351

Today's Topics:

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(none)
7db for $7 (2 msgs)
ACURATE ROTATORS ???
AEA Isolooop
Best wire for dipoles? (4 msgs)
Diapole antenna
flat plate antenna
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Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

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We trust that readers are intelligent enough to realize that all text herein consists of personal comments and does not represent the official policies or positions of any party. Your mileage may vary. So there.

Date: 20 Oct 94 23:22:57 GMT
From: jhurt@freenet.columbus.oh.US (James Hurt)
Subject: (none)

subscribe

Date: Thu, 20 Oct 1994 13:13:16 GMT
From: bsplaine@dogxray.sr.hp.com (Bill Splaine)
Subject: 7db for \$7

I was listening to a conversation on 2m last nite and should have, but didn't, break in... they wer talking about an antenna found in a somewhat recent (?) publication. The article title is about a simple antenna, yagi type I think, that is supposed to be pretty good and only \$7 (less, I guess w/ good junk

What ARE you planning on trying to point at the moon?

--

Tony, G3SKR & AA2PM

Date: 20 Oct 1994 08:45:03 -0400
From: wa8msf@aol.com (WA8MSF)
Subject: AEA Iso-loop

In article <CxGGxF.vz@eskimo.com>, bigdon@eskimo.com (Don Anderson) writes:

I have been using the newer AEA Iso-Loop for about a year here in Ohio. It is mounted on a 2" O.D. pipe that sticks out sideways at about 110' on my VHF/UHF SSB/CW tower. It is horizontally polarized and placed about 7' away horizontally from the mass of the tower structure.

I also have a 75 meter 1-wavelength quasi-horizontal loop for 75/40 regional nets and chit-chat. My radio's tuner can make the wire loop work from 80 thru 10, at least it takes the power.

In no instance has the wire loop (80',40',45',50' at corners) ever exceeded the Iso-Loop in received signal strength. About 5% of the time they are exactly equal. 20% of the time the Iso-Loop @ 110' is more than 15dB better than the wire antenna being operated on higher modes.

Many will say that this is comparing apples with bumble-bees and they are quite right. But I don't think that it matters for purposes of illustration.

The only thing that has ever gone wrong with the Iso-Loop was a nearby lightning strike that took out the control box and wall-power-supply. I have been using the controller that came with my unused "original" Iso-Loop. The "original" had compression joints in the loop that would go high-resistance (an extra milli-Ohm or two was real bad) so I didn't put it way up on the tower where it would be difficult to service. The new one has been up since July '93.

The present installation looks like a Godzilla fly swatter sticking out near the top of the tower. It works great. I had a JA come back to me on 10 right as I was testing the installation and he refused to believe I was using only a compact loop. Said I was 20dB louder than any other W/K he was hearing. That doesn't prove anything except maybe I had the lowest radiation angle of any station that he had tuned across just then. (Height helps alot)

In sum, the only handicap is that it won't take any more power than the FT-1000D. If it had 150KV tuning cap, it would be even neater, but I won't hold my breath for someone to make one like that.

73
Mike - WA8MSF
Cincinnati, Ohio

Date: 20 Oct 1994 11:22:20 GMT
From: fa419@cleveland.Freenet.Edu (Mike Staples)
Subject: Best wire for dipoles?

For 1/2 wavelength wire dipoles in the 10 - 80 meter range, what's the best type of wire to use? Solid? Stranded? Insulated? Non-insulated? Also, what's "Copperweld" and what does "hard drawn" mean?

Thanks!

Mike

Date: 20 Oct 94 15:34:15 GMT
From: hamilton@BIX.com (hamilton on BIX)
Subject: Best wire for dipoles?

fa419@cleveland.Freenet.Edu (Mike Staples) writes:

>For 1/2 wavelength wire dipoles in the 10 - 80 meter range, what's the best
>type of wire to use? Solid? Stranded? Insulated? Non-insulated? Also, what's
>"Copperweld" and what does "hard drawn" mean?

Most folks, I think, choose Copperweld, which refers to a steel wire with a copper plating. It combines terrific strength (no drooping from stretch) with the electrical characteristics of copper. Next choice is hard-drawn, which refers to a copper wire that's hardened so it won't stretch as much as ordinary copper wire. (I'm no metallurgist, so don't ask me how it's done.)

The one slight advantage of hard-drawn over Copperweld is that a steel wire is a little harder to work with: it's springier, tends to kink more easily and just generally more of what it wants, not necessarily what you want. That said, both my wire antennas are Copperweld and I got them up without too much trouble.

What you should not choose is ordinary copper wire. It's just going to stretch too much. Also, do not use a solid wire. You must use a stranded wire or it'll break too easily. (The idea here is that if part of the metal fatigues and begins to crack, it'll go thru that whole strand. If that's the only strand, the wire breaks. But if there are multiple strands, the crack has no way to just continue right on thru.)

Re: insulation or enameling, the ARRL antenna book does recommend this if you're in an area with acid rain, but otherwise it makes little difference.

Regards,

Doug Hamilton KD1UJ hamilton@bix.com Ph 508-358-5715 FAX 508-358-1113
Hamilton Laboratories, 13 Old Farm Road, Wayland, MA 01778-3117, USA

Date: Fri, 21 Oct 1994 00:20:24 GMT
From: waluar@world.std.com (Michael A McCarthy)
Subject: Best wire for dipoles?

hamilton on BIX (hamilton@BIX.com) wrote:
: fa419@cleveland.Freenet.Edu (Mike Staples) writes:
: >For 1/2 wavelength wire dipoles in the 10 - 80 meter range, whats the best
: >type of wire to use? Solid? Stranded? Insulated? Non-insulated? Also, what's
: >"Copperweld" and what does "hard drawn" mean?

: The one slight advantage of hard-drawn over Copperweld is that a
: steel wire is a little harder to work with: it's springier, tends
: to kink more easily and just generally more of what it wants, not
: necessarily what you want. That said, both my wire antennas are
: Copperweld and I got them up without too much trouble.

The disadvantages of Copperweld are that it tends to "rust" out over

time. Pure hard drawn copper forms a green oxidation on the surface and forms a protective barrier. I have a piece of #10 solid hard drawn copper that has been in use off and on since 1963 (handed down from my dad). A copperweld dipole I had up rusted out after about 6 years.

: What you should not choose is ordinary copper wire. It's just
: going to stretch too much. Also, do not use a solid wire. You
: must use a stranded wire or it'll break too easily. (The idea
: here is that if part of the metal fatigues and begins to crack,
: it'll go thru that whole strand. If that's the only strand, the
: wire breaks. But if there are multiple strands, the crack has
: no way to just continue right on thru.)

I'll agree with most of the above with the exception of solid vs. stranded. Stranded copperweld is a good choice and is available from many outlets at reasonable prices. Solid copperweld is almost impossible to deal with. Solid hard drawn copper is my 1st choice but is usually very difficult to obtain at reasonable cost. Solid normal copper will stretch more than I would like. Stranded copper is a better choice if that is all that's lying around.

: Re: insulation or enameling, the ARRL antenna book does recommend
: this if you're in an area with acid rain, but otherwise it makes
: little difference.

Most normal PVC insulation will melt at high power levels. Stranded, tinned #10 or 12 copper wire makes a great dipole and can usually be found at very reasonable prices at flea markets, as long as you don't mind the insulation melting off the first time you fire it up with 1.5KW.

I guess the bottom line is use something in the #10 to #14 range. I use whatever I happen to find at the flea market at a good price.

--

===== Give every man his Dew =====
--... -- Michael A. McCarthy
Everest Engineering Corp., Consultants, 4 Barnes Circle, Marlborough, MA 01752
Voice (508) 460-6737 - E-mail to wa1uar@world.std.com

Date: 21 Oct 1994 04:25:09 GMT
From: garyk9gs@solaria.mil.wi.us (Gary T. Schwartz)
Subject: Best wire for dipoles?

Mike Staples (fa419@cleveland.Freenet.Edu) wrote:

: For 1/2 wavelength wire dipoles in the 10 - 80 meter range, whats the best
: type of wire to use? Solid? Stranded? Insulated? Non-insulated? Also, what's
: "Copperweld" and what does "hard drawn" mean?

: Thanks!

: Mike

Hi Mike!

I would definitely use the stranded, it is much less prone to breaking.
As far as the type, it depends on your situation. If the antennas are
going to be strung between two supports such as towers and/or trees, with
nothing in between, then I would opt for the copper-weld. It will last
forever. If, on the other hand, you will be stringing this through trees
the hard drawn will be much easier to handle. A word of warning about
copperweld: Be careful and wear safety glasses!! This stuff is so
springy that it WILL snap back like a spring when you cut it or if you
accedently let go of an end. You could very easily get an end stuck in
your eye. Be CAREFUL!

Regarding insulation, my experience has shown that if the antennas are
going to be strung through trees, the insulation is necessary. I once had
an 80M dipole made of un-insulated stranded wire strung through the trees.
It worked awful!! I rebuilt it using the same size wire, the same
lengths and the same supports and it worked much better, like night and
day! I think this may be due to the moisture in the trees providing a
lower impedance path to ground. I'm still not sure. I have also noticed
that the time of year makes a difference. In the spring/summer the trees
have much more moisture in them near the surface of the limb than in the
fall/winter. Nothing real scientific here, just observations.
Finally, I prefer to use Teflon insulation. It is so slippery that snow
and ice tend to slide off rather than accumulate.

Good luck!!

73

Gary K9GS

garyk9gs@solaria.sol.net

Date: Thu, 20 Oct 1994 12:27:06 -0400

From: steve@hi.com (Steve Byan)

Subject: Diapole antenna

Unless your receiver is unusually insensitive, you do not need a resonant

antenna for SWL receiving. Therefor an end-fed random-wire antenna is fine. The trap dipole isn't necessary.

You are unlikely to get a horizontal dipole mounted high enough for good reception of low-angle DX stations on the tropical bands. A horizontal dipole has to be mounted at least 1/2 wavelength above ground to have good sensitivity at a low angle. That's 30 meters or about 100 feet for the 60 meter band.

Regards,
-Steve

--
Steve Byan
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Date: Fri, 21 Oct 1994 00:28:40 GMT
From: rjamtgaa@netcom.com (Ron Jamtgaard)
Subject: flat plate antenna

I am looking for a flat plate antenna to receive DBS tv signals(12 GHz). This is for research into mobile communications. I read about a 350mm flat plate antenna with a gain of 31dbi, but the book I read about this in made no reference to the manufacturer. I think the book was called DBS Satellite Systems.

--
rjamtgaa@netcom.com

Date: Thu, 20 Oct 1994 16:41:26 +0000
From: G3SEK@ifwtech.demon.co.uk (Ian G3SEK)

References<37vjjc\$8vq@newsbf01.news.aol.com>
<19940ct18.151414.7898@ke4zv.atl.ga.us>, <19940ct19.140936.21835@arrl.org>
Reply-To: G3SEK@ifwtech.demon.co.uk
Subject: Re: Antenna Analyzers/Old QST magazines

In article: <19940ct19.155728.13570@ke4zv.atl.ga.us> gary@ke4zv.atl.ga.us (Gary Coffman)
writes about the AEA version:

> What I *meant* to say was that it can't display VSWR over 10:1 *or*
> return losses > 50db. The former is more of a limitation than the

> latter.

Since the errors in VSWR/return loss measurements increase rapidly at both low and high VSWRs (high and low return losses, respectively) it seems very likely that the readings are unreliable long before they hit the limits built into the display software.

After all, it needs precision lab equipment to measure *real* return losses better than 35-40dB, and the same applies at the opposite end of the scale too.

Question is: what kind of bridge or other vector impedance sensor circuit is inside the Autek and AEA instruments? Maybe it's different at HF and VHF, but the RF circuit is the interesting part - the rest is just an ADC and software.

Come on, Gary, let's see your company break one open!

73 from Ian G3SEK	Editor, _The_VHF/UHF_DX_Book_
Abingdon, England	
g3sek@ifwtech.demon.co.uk	"In Practice" columnist for RadCom (RSGB)

End of Ham-Ant Digest V94 #351
